

ARMY

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THE OFFICIAL U. S. ARMY MAGAZINE



ARMY INFORMATION DIGEST

THE OFFICIAL MAGAZINE
of the
DEPARTMENT OF THE ARMY

The mission of ARMY INFORMATION DIGEST is to keep personnel of the Army aware of trends and developments of professional concern.

THE DIGEST is published under supervision of the Army Chief of Information to provide timely and authoritative information on policies, plans, operations, and technical developments of the Department of the Army to the active Army, National Guard, and Army Reserve. It also serves as a vehicle for timely expression of the views of the Secretary of the Army and the Chief of Staff and assists in the achievement of information objectives of the Army.

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FOR AN INTERVAL as the Corporal missile on the front cover is set into firing position, it strikingly resembles the elevated gun barrel of a conventional artillery piece in configuration. But once launched, this tapered fury takes on a new dimension of speed and power that is fittingly recognized in the newly designed insignia for the artillery arm—a composite guided missile superimposed on the traditional crossed cannon. The new insignia (pictured on page 23) is scheduled for adoption beginning in 1958.

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Recent changes simplify and clarify

lines of responsibility in

THESE



IN THE autumn of 1955, the General Staff Council * decided that the Army Staff structure was badly in need of realignment.

When the present members of

*The General Staff Council consists of the Vice Chief of Staff, the five Deputies, the two assistant Chiefs of Staff, and the Secretary of the General Staff.

the General Staff Council were all very young officers, back in the Twenties, the War Department General Staff consisted of a Chief of Staff, one Deputy Chief of Staff and five Assistant Chiefs of Staff—G1, G2, G3, G4, and War Plans.

By the autumn of 1955, when they began this re-examination, the number of Deputies had risen from one to five, while the number of G's had fallen from five to three. (See Chart, page 4.)

As to the specialized staff agencies, in the fall of 1955 the seven Technical Services were grouped under the direction and control of

STARKMAN

GENERAL STAFF, U. S. ARMY

GENERAL W. B. PALMER

**Vice Chief of Staff,
U.S. Army**

GENERAL W. B. PALMER, Vice Chief of Staff, was Commanding General of X Corps during the Korean War, of VII Corps Artillery in the European Theater during World War II, of 82d Airborne Division in 1949-50 and of 2d Armored Division in 1950-51. He is the author of "The Evolution of Military Policy in the United States," 1946. This article is condensed from a lecture given at the Army War College, 2 January 1957.



the Deputy Chief of Staff for Logistics, who had extensive command authority in his own right. The Chief of Finance was under the Comptroller. The other specialized staff agencies appeared on the chart in a non-systematic jumble.

It appeared to the General Staff Council, that first of all they ought to look back objectively over the whole 50 years since the General Staff had been created, and see what they could learn from the sum of this experience.

Second, they thought it would pay to compare our experience with that of the Navy and the Air Force, who had likewise faced this problem of organizing a depart-

ment of government suitable to the peculiarities of a military service.

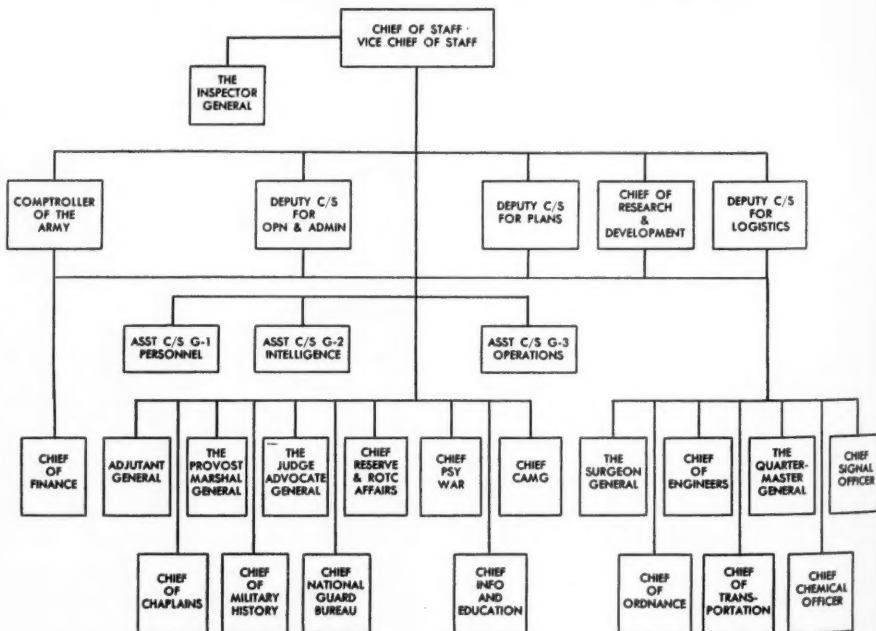
Third, they wondered whether they could not group the specialized agencies of the Army staff into a more orderly design than the apparently patternless hodgepodge which has always appeared on our organization charts.

The first task, then, was to review the history of the Army staff.

THE YEARS OF CHAOS

WHEN President Washington's first Secretary of War, Henry Knox, first organized the War Department in 1789, he did so by establishing four bureaus—the offices of the Adjutant General, the Quarter-

1955 ORGANIZATION OF THE ARMY STAFF



master General, the Paymaster General, and the Judge Advocate. As the years rolled on, new bureaus were created: the Chief of Engineers, the Surgeon General, the Chief of Ordnance, and so on.

For over 100 years, the Chiefs of what we now call the Administrative and Technical Services were not really part of the Army and some of them were not even Army officers. What they were, in fact and in law, was heads of bureaus in an Executive Department. They reported to the Secretary of War personally and took orders from nobody else. This departmental bureaucracy was something quite apart from the Army.

compute materiel requirements based on the mobilization plan; to plan an industrial mobilization based on the materiel requirements; or to plan a long-range program which would make it possible to aim each year's spending toward making the Army ready for the strategic missions envisioned.

BIRTH OF THE GENERAL STAFF

IT WAS to fill this void that the General Staff was created in 1903 and the Chief of Staff was interposed between the Secretary of War and the bureau chiefs. Of course, at that time nobody could



The official head of the Army was the senior line general, and he had the title of "Commanding General of the Army" or sometimes "General-in-Chief." He was the most frustrated man in the Army, because he had no authority over the bureau chiefs, and whenever he tried to butt in they bluntly told him the Army had nothing to say about it.

This strictly bureaucratic approach to military affairs had a thousand grave defects, but the gravest of them all was this: *The War Department possessed no means whatever to relate its actions to the conduct of war.* There was no agency to collect and evaluate intelligence; to prepare strategic plans guided by that information; to prepare a mobilization plan based on that strategic plan; to

have expressed the problem as explicitly as it stands in the preceding paragraph. At that time, the things seen to be immediate necessities were (a) the creation of an intelligence organization, and (b) a beginning of strategic planning. Both tasks were undertaken initially by committees of the Army War College.

From 1903 until the U.S. entered World War I, the Chief of Staff was struggling to occupy and hold the position created for him by law, while the General Staff was still in the primitive stages of genesis. General Pershing, called to Washington to receive the instructions which made him Commander of the Expeditionary Force in France, recorded his im-

pression: "The truth is that the General Staff has not yet been properly organized. . . ." That was the situation as he saw it in 1917, but the pressures of war caused rapid improvement.

By the time of the 1918 Armistice, General March had developed a vigorous General Staff set-up in Washington, while a decidedly different set-up had evolved in General Pershing's AEF* in France, although both conceived the General Staff as the central guiding agency of High Command.

THE SACRED NUMBERS

SINCE General Pershing replaced General March as Chief of Staff in 1921, it was the Pershing or AEF concept of General Staff organization which became crystallized in the departmental organization, bringing with it the terms G1, G2, G3, and G4. Had General March's concept prevailed after World War I, we would never have adopted those magic numbers for the top General Staff.

But the fact is that they *were* enthroned in our doctrine, they became symbols of the True Faith which was brilliantly expounded in our service schools for two decades; and in the course of this exposition we became entrapped in a fallacious theory that an identical system of staff numbering should prevail from the battalion through every echelon of command to include the War Department.

Now this was not merely fallacious but mischievous; for the Department's tasks and problems are radically different from those of troop command, whether battalion

or field army, and require an entirely different staff organization.

However, the historical fact is that the magic numbers 1, 2, 3 and 4 were brought to prevail from the battalion to the War Department; and by 1941, after twenty years, they had become practically sacred.

Then came a new war, a new testing time, and in 1942, General Marshall reduced the departmental G1, 2, 3, and 4 to tokens, and concentrated the War Department General Staff function in O.P.D.**

And in 1946, when General Eisenhower reorganized the War Department for peacetime, the old numbered "ACofS"*** General Staff elements were discontinued altogether, and instead six "directors" were created—for personnel, intelligence, plans and operations, organization and training, logistics, and research and development. The payoff of abolishing the magic numbers was the appearance of research and development on the same level with the former owners of numbers; for so long as the General Staff had those numbers, it was very difficult to provide stature for a new function when it appeared. And if it did *not* get a number, it was not likely to acquire stature among people who had learned that all General Staff activities were numbered G-something. Research and development had become one of the most urgent, compelling, and exciting challenges with which the Army was confronted. In 1946, that fact received recognition.

But in 1948, Research and Development was shoved into Logis-

*American Expeditionary Force (1917-19).

**Operations Division, War Department General Staff (created 1942).

***Assistant Chief of Staff.

tics, where it certainly did not belong; and this cleared the way to go back to the old 1-2-3-4 organization, which action was initiated in 1949. Viewed from hindsight this was a mistake, but after all we have come to this conclusion only by giving it a try.

THE COMPTROLLER INTRUDES

CONCURRENTLY, the High Command was being called upon to take charge of another, a very significant function which had no sacred number: control of the money.

For an immense change had occurred in the control of the Army. Although the General Staff had been established in 1903, the Congress had continued until 1950 to appropriate the money directly to the bureau chiefs—so much money to the Quartermaster General, so much to the Chief of Ordnance, and so on. Then the bills always went into much detail about what each bureau chief would do with his money; and these details frequently represented political bargains, or at least had no relation to readiness for war or the security of the United States.

So it was a real, an earthshaking change when the Congress agreed to take the money away from the Chiefs of the Services and place it in the hands of the Secretary of the Army (under the Secretary of Defense); and by legislation Congress furnished the Secretary with a Comptroller to manage the money for him. This was the most important change ever made in the administration of the Army with the sole exception of the General Staff Law itself.

The source of all power, then,

was put in this Comptroller's hands, but the General Staff was decidedly slow to embrace him. He had no number when they counted off 1-2-3-4, so he had no standing with the devout believers of the Old Faith. Under civilian pressure the Comptroller was made a lieutenant general and received a limited status as a Deputy Chief of Staff, but it was all done reluctantly. The Comptroller and his office found themselves almost in the status of outsiders.

So a detached observer could have seen by 1950 that the dogma of the Sacred Numbers was becoming a straitjacket. It was hampering research and development. It could not adjust flexibly to a golden opportunity to guide expenditures in conformity with strategic plans. And there was still a third area in which the Sacred Numbers had become a manifest handicap. That was the area of logistical management.

HOW TO MANAGE LOGISTICS?

IN World War I and on a greatly increased scale in World War II the stuffy little Departmental supply bureaux of 1900 grew into huge industrial organizations, with arsenals, factories, depots, proving grounds, purchasing agencies, schools, laboratories, and all the business and industrial problems of vast commercial enterprises, together with a tremendously varied array of technical troops.

Since all of these enormous enterprises existed for the support of the combat arms, some agency inevitably had to appear with the mission of coordinating their huge efforts, with each other and with the strategic missions of the Army.

For half a century, more or less, the Army has been seeking how best to conform to the fact of life that the huge logistical effort of the Army has to be *directed and controlled by somebody who is charged with that specific mission and no other.*

In both World War I and World War II, the War Department under the pressures of war was forced to combine in one man the function of executive authority over logistical operations and the function of principal staff advisor for logistics.

During the period of postwar reorganizations after World War II, it was decided to try combining these two functions in G4 of the General Staff. G4 accordingly received authority to "direct and control" the Technical Services. And under this formula, with an Assistant Chief of the General Staff empowered to "direct and control" the Technical Services, we went through the war emergency which began in June 1950. *It was the first modern war in which we did not abandon our logistical organization and create a new one.* But there was an important defect:

Both the Chief of Staff and the Secretary of the Army held G4 completely responsible for the logistical operations of the Army, that was what they meant by "direct and control"; but 100 percent responsibility was not matched by corresponding authority.

The effect of the General Staff concept that had prevailed since 1921 was to give several other G's authority to intervene directly in Technical Service affairs. What the Technical Services desperately needed was clear leadership provided by one boss; what they were

getting was confused direction from four or five authorities, each of whom claimed partial jurisdiction under the sacred "General Staff concept."

It is an interesting thing that this defect was much more evident to informed civilians than it was to the professional leadership of the Army. These civilians tried to obtain the creation of a four-star Vice Chief of Staff for Logistics, and did force the creation of the Deputy Chief of Staff for Logistics in 1954, over at least passive resistance from many of the professional fighting men.

By this time the detached observer could have seen that three-star Deputy Chiefs of Staff were being created merely to get around the rigidities of the G1-2-3-4 scheme of things; and at this point we had better tidy up the story of the deputy chiefs of staff.

DEPUTY CHIEFS MULTIPLY

FROM 1921 to 1948, there was only one Deputy Chief of Staff; he was the Number 2 man of the staff. In 1948, the title of this No. 2 position became Vice Chief of Staff, with four-star rank. Beneath it were placed *two* Deputy Chiefs of Staff, who were expected to settle all matters except the most important. Late in 1949 the new Comptroller of the Army was placed on the level of the Deputies in a somewhat limited sense; the chart of the Army staff now showed a level of three Deputy Chiefs of Staff in the grade of lieutenant general, a level of four Assistant Chiefs of Staff, and a couple of floors of other staff agencies.

Five years passed, and in September 1954 the Assistant Chief of

Staff, G-4, moved up to become a fourth Deputy, a Deputy with a very large staff of his own, and wide executive authority in his own right. And shortly after, in early 1955, attention once more became intensely focused upon Research and Development.

It was apparent to all of us that it was not advancing as vigorously as it ought to. There was no clearly marked head of Research and Development at the level of the Assistant Secretaries. Both there and at the General Staff level, Research and Development needed rank and prestige which would place the Army on equal terms with the other services before the Department of Defense, and before the innumerable outside scientists and advisory groups that get into the act. Accordingly, in September 1955, Research and Development received a place at the level of the Assistant Secretaries and simultaneously the General Staff set up a three-star "Chief of Research and Development" at the level of the Deputies (the Army being limited by law to three individuals with the title of "Deputy").

It was at this point, in September 1955, when we found ourselves with five three-star Deputy Chiefs of Staff (in fact if not in law) sitting over three Assistant Chiefs of Staff in two-star grade, that the General Staff Council decided it was high time to take a good hard look; and we have now completed the first part of that good hard look—a look at the history of the Army staff since the General Staff Act of 1903.

NAVY AND AIR FORCE STAFFS

THE second part was to see

what could be learned from Navy and Air Force experience. Although the study made was thorough, we can cover it briefly, for both had much in common with the Army. Each had a four-star Vice Chief and several three-star Deputy Chiefs, whose titles bore a close resemblance: personnel, operations, logistics, R&D. The most significant point was that both had settled on Deputy Chiefs in three-star grade as the principal supervisors of the staff, the exact solution into which circumstances were also forcing the Army.

SPECIALIZED STAFF AGENCIES

THE third part of the study was whether the specialized staff agencies could be grouped into a more orderly pattern, and here too a major conclusion quickly presented itself.

The General Staff, having survived three wars, is now an old and accepted element. Jealousy and distrust have ceased to poison its relations with the old-time bureaus. Its functions of High Command no longer create friction. Making no claim to be the priesthood of a sacred mystery, it gives common direction to the common effort of many groups and thus plans, directs, coordinates, and supervises the work of the Army.

But time has worked another change that is equally important.

In 1926 the Army Staff was described as a "loose confederation of major generals." At that time the Chief of Staff himself was only a major general, the same as all his Chiefs of Services; while the principal General Staff officers, the G's, were only brigadier generals.

By 1955 the Army Staff had

evolved a logical hierarchal structure, branching from a four-star Vice Chief of Staff to five Deputies of three-star rank, under whom the two-star staff elements could reasonably be grouped for supervision. Therefore a much simplified structure, with much clarified lines of authority and responsibility, would be a perfectly natural thing. It would also be compatible, though not identical, with the evolution which had occurred in the Navy and the Air Force.

THE NEW ARRANGEMENT

ONCE the study had reached



this point, a new Army Staff arrangement developed practically of its own accord. (*See Chart, page 11.*)

The Army's Deputy for Operations and Administration was renamed "Deputy for Personnel." He took over the G1 staff for his own staff, and received the formal supervision of those specialized staff sections which reported principally to him.

The Army's Deputy for Plans had always had the major interest in the affairs of G3. To give him the G3 staff for his own, with exclusive jurisdiction over G3 matters, required a slight broadening of his charter, from Deputy for Plans to Deputy for Military Operations. Certain specialized staff agencies seemed to belong in his field, and

were placed under his supervision.

The mystic titles of G1 and G3 thus disappeared, as G4 had done earlier, and there remained only G2—Intelligence. What to do?

In the Air Force they had a *Director* of Intelligence, who was a subordinate of their Deputy Chief for Operations. If we adopted that solution, we would be accused of down-grading G2. The Navy had an Assistant Chief of Naval Operations for Intelligence; that is, a status approximately the same as the Army's G2. We took the obvious solution of leaving him alone, therefore, except that we deleted the sacred number.

There are always certain staff

agencies which have the privilege of direct access to the Chief of Staff and the Secretary of the Army. The Chief, National Guard Bureau represents the Secretary of the Army in dealing with 52 State National Guards, each serving under its own Governor and Adjutant General. The Judge Advocate General and the Inspector General both have direct access to the Secretary for certain matters. The Chief of Information is the "official spokesman" of the Secretary and the Chief of Staff.

As a matter of getting their business done, all of these agencies go direct to the Deputies with the great bulk of their problems.

The changes described above were made on the first business day of 1956, and in a year of trial they have worked well. More recently

(1 November 1956) we have made a significant addition—an Assistant Chief of Staff for Reserve Components.

The Army has been going along for 40 years with two different Reserve components: the National Guard and the USAR. Each has its own appropriation and its own program. But the two reserve components must be combined into one program before anyone can relate them to the strategic requirements. Once we got rid of the sacred numbers, it became amazingly easy to see the need for an Assistant Chief of Staff for Reserve Components. Everyone said, "How have we ever gotten along without

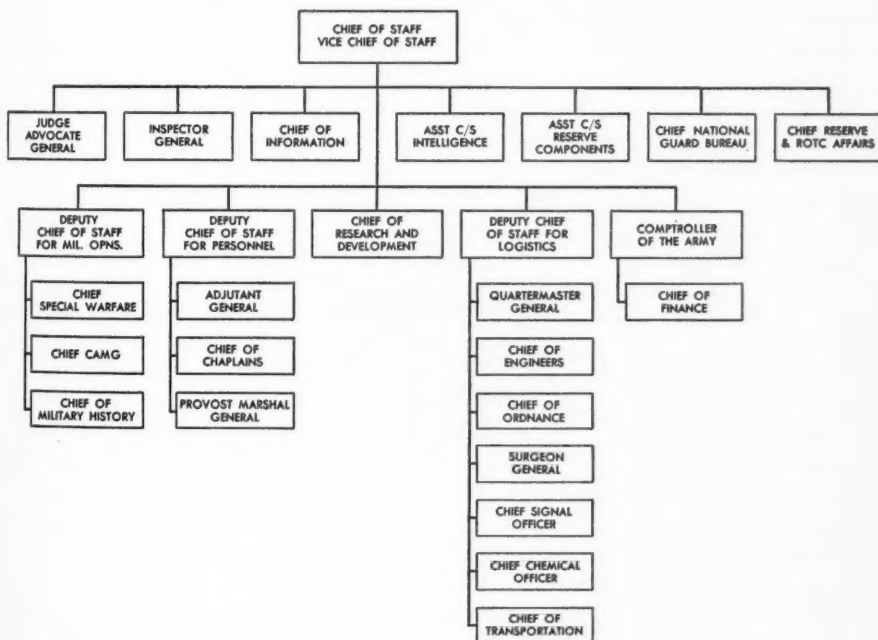
it?" But the truth is that we would *never* have created an Assistant Chief of Staff for Reserve Components if he had been obliged to get himself a sacred number. We have indeed escaped from a strait-jacket.

THE GENERAL STAFF COUNCIL

THERE remains one important point to be covered:

It was stated above, that the General Staff's function is to give common direction to the common effort of many groups, and thus plan, direct, coordinate, and supervise the work of the Army. But the question at once arises: How is common direction given to the

1956 ORGANIZATION OF THE ARMY STAFF



common effort of the seven Deputy and Assistant Chiefs of Staff who give common direction to the common effort of all the rest? It is an obvious truth that this responsibility rests on the Vice Chief of Staff, but actually he can spend little time coordinating them personally.

The most important medium for attaining a common point of view is the General Staff Council. The Council meets every Monday and Thursday at 10:00 o'clock. An agenda is sent to members in advance. The average subject is proposed by a Deputy who has an important recommendation just about ready for the Chief of Staff. First he wants to make his colleagues aware that it has reached this critical point of progress, and to get their comments upon the proposed presentation. No formal vote or decision of the Council is ever taken; but when the discussion closes, all present have a consensus of the sharpest professional thought on this subject.

The Chief of Staff himself frequently directs that the General Staff Council hear a subject before it is brought to him; and sometimes he directs that the General Staff Council hear a subject *after* it has been brought to him. In fact, it is a simple and easy way to bring into action the combined thought of this, the highest and most experienced professional group in the Army.

The General Staff Council is small and compact; its members are hard-boiled; it is impossible for anyone to crash its gate. It sticks strictly to the most important questions, never hearing more than two subjects at a session, and insisting upon ample time for discussion.

The members of the General Staff Council regard it as the best unifying influence the Army staff has had in recent years.

CONCLUSION

AT THIS POINT a gentleman rises in the back of the hall, and declares himself as follows: he served many years on the War Department General Staff, and thought he knew the General Staff theory; the General Staff is supposed to concern itself with planning and policy, it is not supposed to operate; now he hears this story of how we run the Army staff in 1957, and he doesn't believe we have a Departmental General Staff any longer. He asks somebody to tell him how, in 1957, one can distinguish the General Staff from the rest of the staff.

Well, one has to ask his agreement that the theory of the Departmental General Staff has undergone rather steady change from the primitive approach of 1903 to the Peyton C. March form which flourished in 1918, then to the John J. Pershing form which took over by 1922, and then to the George C. Marshall form which flourished by 1945. By the end of World War II, there was general agreement on this: that the General Staff is supposed to help the commander by doing everything which the commander himself would do, as part of his personal job, if he had supernatural strength; the General Staff similarly should refrain from doing anything which the commander would not have done personally, but would always assign to be done by someone else.

It will be seen that this precept is exceptionally well adhered to

today, when the Departmental General Staff consists in the main of the Deputy Chiefs and their respective staffs. For it is precisely their function to serve the Chief of Staff by doing for him everything which he would do himself if he had supernatural strength; and the authority of a Deputy to act for his Chief bestows upon them, in formal terms, the power to do so.

Now, if it is your job to assist your boss in doing everything which he himself would do as part of his personal job if he had supernatural strength, then it is nonsense to say that you should not operate. The General Staff has always operated; if it were permitted merely to promulgate plans and policies, what agency was created to supervise their execution? One of our alltime great General Staff officers was the late General Fox Conner. He was one of the first General Staff group; he was General Pershing's G3 in France; he did much General Staff duty in Washington, and in the end declined appoint-


ment as Chief of Staff of the Army. Whenever this question of operating was raised, General Conner vehemently denounced the nonsense of pretending that the General Staff should not operate.

The gentleman in the back of the room is still muttering, and indeed nobody would claim that any of these new arrangements of the staff are either ideal or permanent. They are practical arrangements agreed to by practical men. The best one can do about "reorganizing" an organization as big as this is to make a limited number of changes at any one time, which of course one tries to make in the right direction. Tomorrow new pressures will bring about new changes.

The rearrangement of the General Staff in 1956 was in the direction of eliminating echelons, of simplifying and clarifying lines of responsibility, and of shaking loose from a hampering shibboleth. After a year's experience we are quite delighted at how well it has worked in practice.



ARMY POWER—A KEY TO PEACE



With a new "family" of heavy construction
equipment adapted for airdrop

THE ENGINEERS GO AIRBORNE

Jack W. Moss

HUNDREDS OF TONS of Engineer equipment, including bulldozers and heavy machinery, can now be parachuted into an airhead, and airstrips can be quickly constructed—all as a result of the Corps of Engineers' development of a new family of lightweight airborne construction equipment.

Given the task of securing an airhead in enemy territory, the

JACK W. MOSS is Chief, Mechanical Equipment Branch, Research and Development Division, Office, Chief of Engineers, Department of the Army.

Engineers must first fight as infantrymen if required. But their major task after hitting the ground is to construct airfields—a job which must be completed in a matter of hours. Although in traditional role they must also blow bridges, plant mines and set up roadblocks and barriers, these missions are accomplished with standard equipment and techniques. It was the airborne construction challenge, stemming from World War II days, that stimulated the development of an entirely new airborne family of construction equipment which may

be either dropped by parachute or landed in assault aircraft.

THE need for airborne construction capability was established during World War II but the limiting capabilities of aircraft then in use—i.e., gliders with 8,000-pound payload—precluded equipment other than a midget family of 2-cubic yard earth scrapers, tiny crawler tractor bulldozers and other materiel too small for effective military operations.

Recognizing the future importance of airborne operations, the Corps of Engineers in 1947 initiated a development program based on the criterion that the end product's work capacity must compare favorably with that of standard heavy duty equipment.

The C123 airplane was designated as the assault plane for

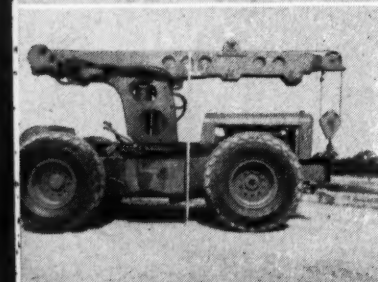
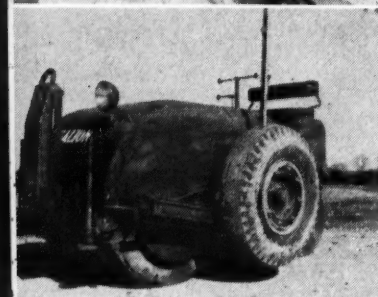
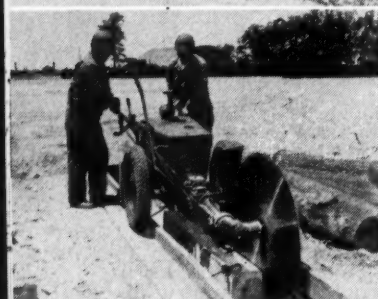
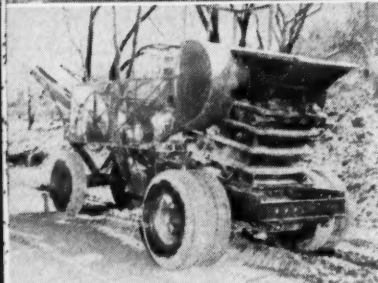
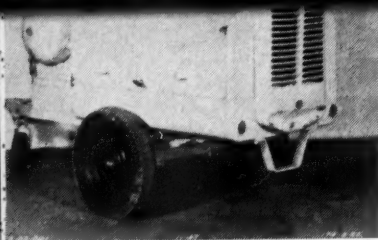
initial airborne operations, thereby establishing a maximum allowable weight of 16,000 pounds for airborne equipment and limiting width-height-length dimensions of 8 feet 2 inches, 7 feet 8 inches, and 35 feet respectively.

At first these limitations appeared insurmountable. Not only were airstrips to be built with much greater speed, but weight of equipment was to be materially reduced. In short, weight had to be cut but not work capability.

Two approaches were possible: either attempt to modify standard equipment of known performance characteristics; or depart completely from the conventional approach and try radical methods such as using airplane design techniques.

After consultation with experts in the construction machinery in-





dustry, the first approach was adopted as the most logical. The advantages were obvious. The fact that much of the research work was already done eliminated long periods of possible unproductive study; also there was less chance of time loss in testing equipment built on untried ideas. Industry, too, could use existing tools and manufacturing techniques during development, and bring its full production facilities into play in time of mobilization.

PERHAPS the most impressive example of the development program's success is the airborne crawler tractor bulldozer.

Conventionally, high production capacity bulldozers depend on weight and power. In this case, the specific problem was to achieve in a lighter, more compact unit the performance of a 33,000-pound tractor dozer which was twice the weight capacity of the airplane. Applying the axiom of the earth-moving industry—"It takes horsepower to move dirt"—the principle was followed of substituting more power for weight wherever possible.

Adaptations included use of frame and gas tank from a smaller machine, the track system of a middle-size tractor, and a new,

Working in conjunction with capacity air-c field show
American industry, the Corps of Engineers has developed many light but powerful items



Left, top to bottom: Le Roi GI-U Compressor. Smith Engineering Crusher. Little Giant 22-4 Saw. Galion Modified 3-5 ton Tandem Roller. Austin-Western Crane. BC-GC ST 6580 Scrapper.

hydraulically operated dozer blade which was lighter but more efficient than a mechanically operated blade.

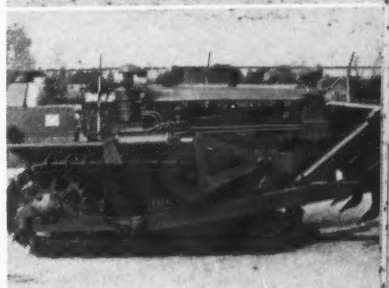
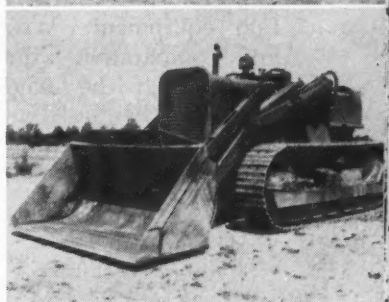
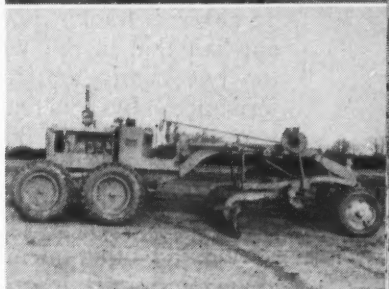
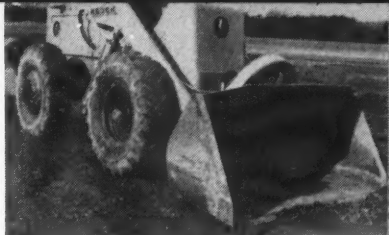
Every component was examined from the standpoint of lightening the weight and still doing the job. A solid part was replaced with a lighter webbed casting, grousers were reduced in size and brush guards were modified or removed. Ten pounds were saved here, a hundred there, and the machine gradually moved toward the magic goal of 16,000 pounds.

In initial tests, the productive capacity of the lighter machine was less than standard, since its light-weight dozerblade tended to ride up over hard earth during excavating operations. Then a new idea which was beginning to gain favor commercially was tried—namely, using reversed scarifier teeth on the bottom of the dozer blade.

During backup of the tractor, the blade was left low, and the teeth scarified the next cut that was to be dozed out. In effect, the whole horsepower of the tractor was utilized during the complete cycle. And with the earth so scarified, excavating became practically a backfilling operation, making possible a forward motion of the tractor at a much higher speed.

capable of being airborne and
air-dropped to troops in the
field. Some of them are
shown here:

Right, top to bottom: Hough HM Payloader. Caterpillar 212 Grader. Allis-Chalmers HD-5G, 1 cubic yard. Caterpillar D-6S. LeTourneau-Westinghouse DW-2. American Coleman D44PM.



The net result was an average of about 35 percent increase in productivity.

As a result, the Army today has an airborne tractor dozer weighing one-half that of the standard tractor but nearly equaling its performance by increased speed achieved by greater horsepower.

THE SAME approach, with many variations, was followed in developing other members of the new "family" of airborne construction equipment. Weight savings and comparative work capacities on some of the major machines include:

tank with an 18-foot spray bar, to be mounted in the 2½-ton airborne dump truck for dust alleviation and moisture control, weighing 500 pounds in all.

- An airborne mobile maintenance shop with mechanic's tools, welding and cutting equipment, weighing 8,800 pounds.
- An airborne trailer-mounted electric tool set with portable engine generator for field operation, weighing 1,400 pounds.

All of these items have been newly developed and are now available.

A two-fold criteria is met with

<i>Item</i>	<i>Weight</i>	<i>Work Capacity</i>
World War II Bulldozer	33,000 lbs	100 cu. yds/hour
New Airborne Bulldozer	15,860 lbs	85 cu. yds/hour
World War II Bucket Loader	17,000 lbs	90 cu. yds/hour
New Airborne Crawler Loader	15,500 lbs	170 cu. yds/hour
New Airborne Wheeled Loader	15,700 lbs	180 cu. yds/hour
World War II Earth Scraper	38,000 lbs	125 cu. yds/hour
New Airborne Earth Scraper	13,000 lbs	125 cu. yds/hour
World War II Motor Grader	22,000 lbs	12,000 lbs. Drawbar
New Airborne Motor Grader	14,220 lbs	8,000 lbs. Drawbar
World War II Air Compressor	8,500 lbs	105 cu. ft. min.
New Airborne Air Compressor	3,600 lbs	105 cu. ft. min.

POSTWAR studies indicated the need for additional special-type airborne equipment in the construction of airheads. These included:

- A pneumatic tired compaction roller with a net airborne weight of 13,500 pounds but a ballasted work weight of 70,000 pounds.
- A 15-ton-per-hour airborne rock crusher weighing 15,950 pounds.
- A 900-gallon collapsible water

this equipment. Depending upon the terrain characteristics of the airhead site, the equipment may be landed in C123 assault aircraft or air-dropped from C119 cargo aircraft. Where the terrain is not suitable for immediate landing, it is necessary to parachute Engineers and their construction equipment onto the site and build emergency airstrips in a matter of hours for landing the C123's. After this airdrop

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A 16,000-pound crawler tractor bulldozer is pulled from a delivery plane by an extraction chute.

requirement became evident, improved heavy drop techniques were developed, beginning in 1951.

THE airdrop requirement presented several problems which were quickly mastered. The essential physical difference between airlift and airdrop materiel is that the size and weight of the airdrop equipment must be reduced by the space required for the heavy-drop kits and the multiple roller conveyors which facilitate entrance and evacuation from the airplane. Also, special lifting eyes suitable for parachute suspension and tie-down must be added.

All this equipment has been

developed, tested and is now available in quantity. Meanwhile, new and improved airborne construction equipment is continually under development.

Today the Engineer has become truly airborne and is ready for this type of operation anywhere in the world. This new role brings with it a host of related operational problems and responsibilities.

THE over-all logistics of an independent type airhead operation are most involved. They include a great variety of interlocking problems—assembly of troops and equipment after the airdrop, unloading, documentation, storage,

All three of these Engineer construction items can be transported by air—wheeled tractor bulldozer with scraper and crawler tractor pusher.



distribution, transportation control, evacuation, and communication—all of which must be timed to the split second.

Actual exercises have pointed up the many contingencies that must be anticipated. As an example, the possibility exists that with a ground wind of 15 knots the automatic parachute releases may not disconnect, and the equipment may be turned over on its side or back and dragged for as much as 75 yards. This does not necessarily make the equipment inoperable, but it may damage certain controls—steering wheel, throttle, or other projecting components. As a result, vulnerable components have been re-designed or disassembled to avoid serious damage.

Another consequence of overturned equipment was loss of liquids. This taught the lesson that gasoline, diesel fuel, anti-freeze solutions, battery acids, lubricating oil and water must be dropped *along with* the equipment in order to insure that the equipment may be quickly put into operation.

ANOTHER important Engineer responsibility is terrain intelligence, for unless a suitable site is selected, the airhead operation is most likely doomed to failure.

Site selection affects construction time. Clearing of trees, rocks and other obstacles and earth-moving must be held to a minimum. Perhaps the most critical aspect of site selection occurs when the site is inaccessible and ground reconnaissance cannot be achieved, as is the case in most independent airheads established in enemy-held territory.

Because site selection is usually

dependent on available terrain intelligence and maps or data derived from photo interpretation studies, it is evident that suitable sites may not always be at the pin-point location desired by the field commander. In such cases, he must carefully weigh the chances of success or failure on marginal factors.

The Engineer must select the most advantageous strip locations from the standpoint of ground cover (trees or brush), soil, drainage, availability of suitable construction materials and accessibility to the major objective. By remote methods, he must locate sources of borrow and other construction materials.

Weather at the particular season must be known and considered. During the rainy season, the condition of soils in some areas may make it absolutely impossible to support construction effort; in many cases the ground may not even be trafficable for combat equipment. Plans must then include preparation by clearing, grading, draining and surfacing.

Once Engineer personnel are on site, they must ground check the preliminary clearing, grading and drainage plan; confirm sources of borrow and other construction materials; establish the types of in-place materials on the strip and the borrow to replace them; set grades, both longitudinal and transverse; control compaction of the sub-grade; and test the finished surface for bearing values to support the airplanes.

Accordingly, the time required to construct an airstrip in an airhead is in direct relation to the type of terrain and weather. If

little or no clearing is required, if the terrain is level and the soil is suitable, an emergency strip may be built in a remarkably short time.

Excluding job mobilization time and assuming a fair estimate of enemy interference and weather, the time required to build or repair an existing airfield in an airhead is inversely proportional to the equipment horsepower effectively applied to the job. With good planning and job supervision, there is little likelihood of over-saturating the site with more equipment than can be used efficiently. The time element then becomes a question of how much airlift the commander is willing to commit to the engineer task in the early hours of the assault.

Unless an airfield already exists in a projected airhead and is not

seriously damaged, the engineer task is second only in importance to the combat action to secure the airhead. Otherwise, a sustained airhead must be entirely dependent on parachute delivery of supplies.

FORESEEING the vital importance of airborne operations, the Corps of Engineers have developed new and adequate airborne equipment that can be manufactured in large quantities with existing facilities. They have devised advanced techniques for selecting an airhead site by remote methods and for rapidly constructing airstrips at the indicated location. As a result, the Army Engineer is now a triple-threat soldier, fighting as an infantryman, trained as a paratrooper and master of constructing airheads.

Water Purification Plant

A ONE-MAN OPERATED "packaged water plant" capable of satisfying emergency water requirements of 50,000 persons has been developed by sanitary engineers at the Corps of Engineers Research and Development Laboratories, Fort Belvoir, Virginia.

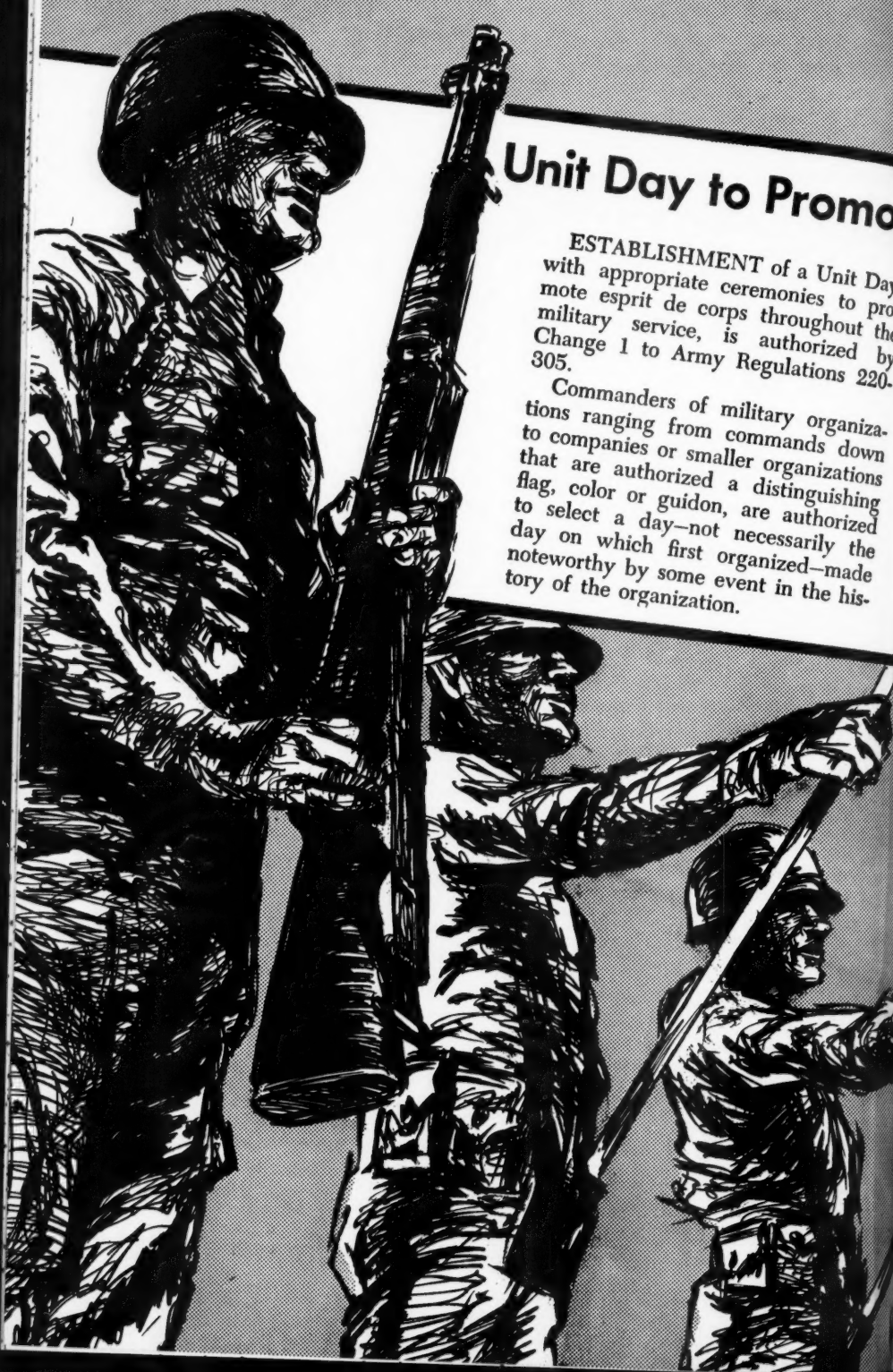
The plant which can purify up to 12,000 gallons an hour, now is undergoing troop tests, producing drinking water from the polluted Potomac River. It consists of three main all-aluminum sections—an "erdlator" and two gravity-type sand filters. The erdlator is a cone-shaped up-flow coagulation basin 14 feet in diameter which removes mud, bacteria and other suspended matter to make disinfection and filtration possible.

IN the cone shaped mixing vat, polluted water is aerated, then thoroughly stirred with chemicals which contain a

coagulant (ferric chloride); a coagulant aid (pulverized limestone) and a disinfectant (calcium hypochloride). The water then passes through a strainer where suspended particles are removed.

After passing through gravity sand filters, the water is collected in an aluminum water storage tank, then pumped into a pipe distribution system. The entire process takes about 20 minutes.

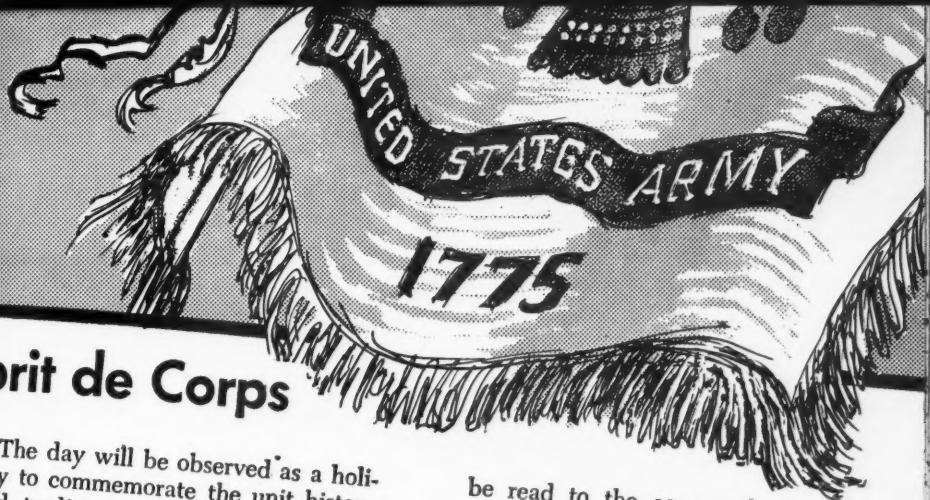
The plant, designed for field erection, is suitable for emergency use at field hospitals, air bases and other installations. Housed in a 40 by 40 foot building, the new purification unit rounds out the family of field-type facilities developed by the Laboratories' Sanitary Engineering Branch. Other members include an airborne trailer-mounted unit rated at 600 gallons an hour, and truck and skid-mounted versions that can purify 1,500 and 3,000 gallons per hour.



Unit Day to Promote

ESTABLISHMENT of a Unit Day, with appropriate ceremonies to promote esprit de corps throughout the military service, is authorized by Change 1 to Army Regulations 220-305.

Commanders of military organizations ranging from commands down to companies or smaller organizations that are authorized a distinguishing flag, color or guidon, are authorized to select a day—not necessarily the day on which first organized—made noteworthy by some event in the history of the organization.



note **Esprit de Corps**

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The day will be observed as a holiday to commemorate the unit history and traditions in suitable ceremony. Interest is to be stimulated by publications, display of unit insignia, mottoes, crests, coats of arms, pictures and signs, motion pictures and talks, traditional marches and songs.

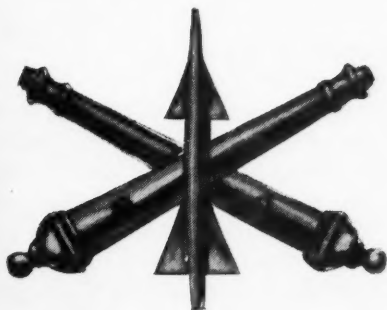
Each unit selecting a day is to report officially the date and historical significance thereof to The Adjutant General, Department of the Army, Washington 25, D. C., ATTN: AGAO-O.

Citations received by units are to

be read to the command on appropriate occasions and at escort to the color or distinguishing flag when it is part of the prescribed ceremonies of the day.

Presentation of recruits to the colors may take place on any appropriate occasion as well as on a Unit Day. The initiation of recruits is to be staged after they join a unit and are considered as soldiers by their commanding officer. At such ceremonies the lineage, battle honors, awards, coat of arms and unit insignia will be described.

New Artillery Insignia



SYMBOLIZING modernization of artillery weapons, a new Artillery insignia has been adopted for Army use beginning in 1958. The familiar crossed artillery cannons which have characterized existing insignia since 1907, will be retained but at the center a composite missile will be superimposed vertically. Current plans call for the new design to be worn by all Artillery officers as soon as the items are available. Enlisted insignia will be issued initially to personnel assigned to missile units, then later to those in all other Artillery units. Existing guidons and standards will be changed as they wear out.

STARKMAN

*Improved methods of communications, data
processing and transportation streamline Seventh
Army supply operations under a new concept
known as*

MODERN ARMY SUPPLY SYSTEM

Major General Frederic J. Brown

FOR NEARLY 175 years the Army has procured, stored and issued supplies to its troops with little or no change in basic concept.

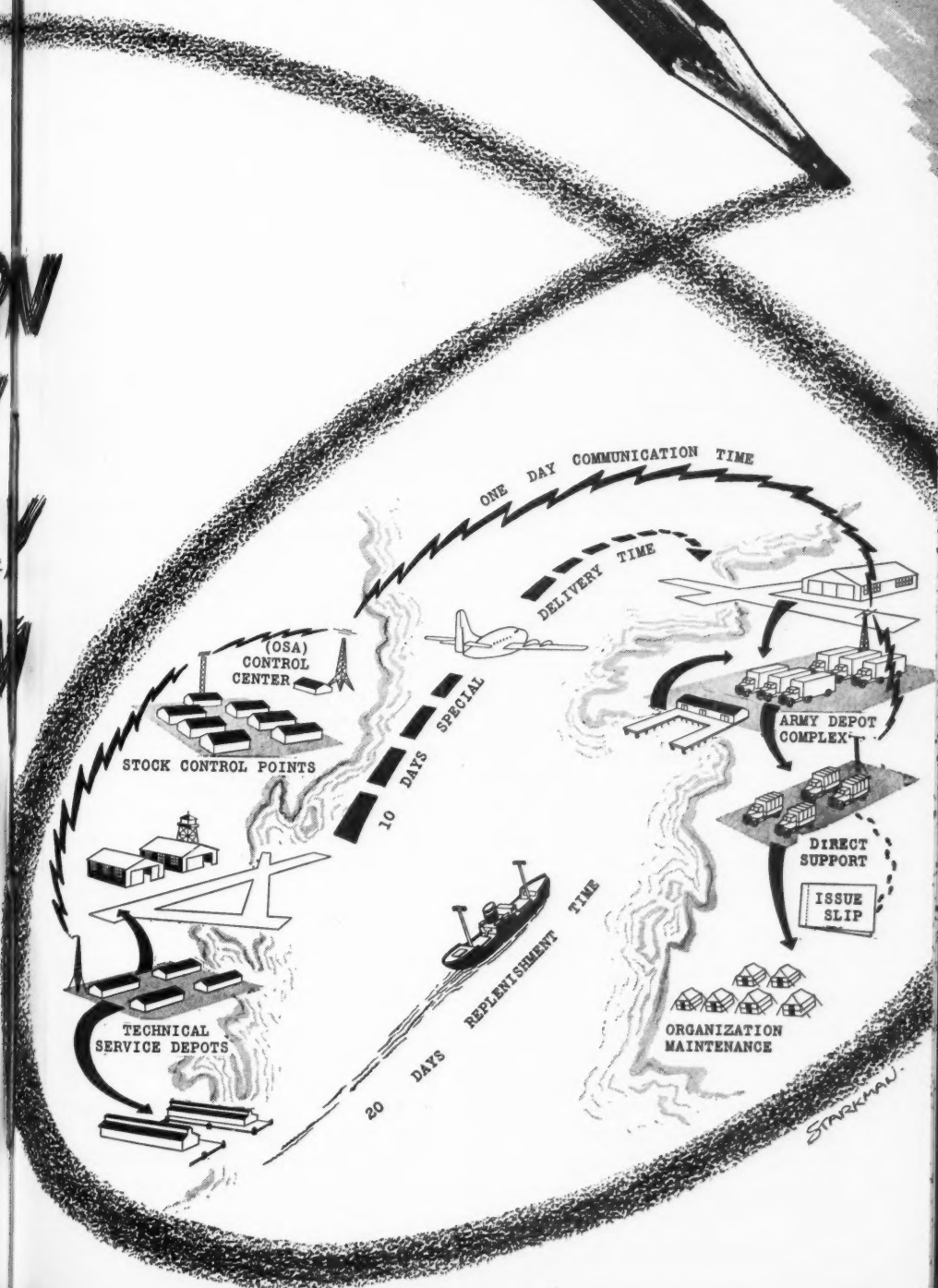
In years past, horseshoes and a bale of hay were practically all

MAJOR GENERAL FREDERIC J. BROWN is Director of Supply Operations, Office of the Deputy Chief of Staff for Logistics, Department of the Army.

that were needed to ensure mobility. But with the advent of technological progress and the machine age, items of supply have increased by leaps and bounds. Each new engineering development has meant a potential increase in the number of items requiring supply support.

Literally thousands of mechanical parts, highly specialized test equip-

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STARKMAN

ment, and a wide variety of fuels and lubricants are needed to support the highly complex equipment required in today's mobile Army. Ever-increasing supply problems resulting from expanded supply channels and the addition of new items have compelled the Army to reevaluate its supply system.

No longer can the Nation afford the tremendous stockage in over-sea areas that a modern field army would require under the old supply concept. In Europe, for example, merely providing adequate support to combat units under the old system would mean stocks of back-breaking proportions—both in dollars and tonnages—all along the supply line.

Korea proved to logisticians and commanders alike the imperative need for a streamlined system of supply immediately responsive to the demands of fighting units. It also demonstrated the necessity for complete logistic mobility within the theater of operations.

Accordingly in 1955 the Army, with the assistance of staff members of George Washington University, developed plans to test a Modern Army Supply System. This system, known as Project MASS, is now undergoing a test of its efficacy in supplying Seventh Army in Europe with repair parts.

PROJECT MASS is geared to the demands of the commander of the highly mobile field Army of the atomic age. In essence, it is designed to test the feasibility of reducing the repair parts stockage of an oversea field army to fast-moving selected items, with less frequently needed repair parts obtained from distribution depots

in Continental United States.

Efforts are initially being concentrated on repair parts because (1) they represent eighty percent of all items in the Army supply system and (2) they are the least predictable items of supply. Other classes of supplies will be added as the test progresses. Eventually the procedures resulting from this test will be extended world-wide.

Project MASS became operational in Seventh Army on 2 July 1956. Although the test will continue until 1 July 1958, its basic concepts have already proved successful. Before the Project was initiated, large fixed depots throughout Europe stocked approximately 400,000 line items of repair parts for the support of Seventh Army requirements. Today, small mobile depots stocking approximately 40,000 selected line items are doing the same job successfully.

Previous studies had determined that 15 percent of repair parts normally meet 85 percent of user demands. This concept had been tested by the Ordnance Corps during the Korean conflict. Selected fast-moving items were stocked in Eighth Army supply points. Slow-moving items, representing the remaining 85 percent, were stocked to the rear, in Korean Communication Zone depots and in depots located in Japan. Results were highly satisfactory.

SELECTIVE Stockage is but one of the four major elements of Project MASS, the other three being Rapid Communications, Priority Transportation, and Electronic Data Processing.

Selective Stockage—known officially as the Army Field Stock Con-



A mechanic requiring a repair part sets in motion the machinery of the Modern Army Supply System.

trol System—is a stock control and accounting method which has been installed at pilot installations in each Army Area and will be implemented world-wide during 1957. It includes all Class II supplies—that is, practically everything stored at a post except subsistence, petroleum, oil, lubricants and ammunition.

This Army Field Stock Control System encompasses techniques which enable Project MASS to stock the most frequently needed items with the using organization, those less frequently needed further to the rear, while those seldom used are kept out of the combat zone until requested. Anything requested three times in 180 days is considered a fast-moving item and becomes a candidate for stockage. Seasonal, and a limited number of insurance-type items, are

also authorized for stockage.

Single line item requisition forms used under the System further expedite supply action by permitting an item to be requisitioned when needed without waiting for consolidation at the various supply echelons.

Use of actual demand data (rather than past issue experience) as a basis for computing supply requirements represents still another departure from old established supply concepts. Prior to Army Field Stock Control, supply requirements were based on engineering estimates and issue experience. This provided the Army with quantities of repair parts—but too often they were the wrong items.

As an example, when the requisitioner went to the supply sergeant for a carburetor repair kit and a tire patch, chances were that if the

1. STOCK NUMBER		2. ITEM NAME		3. U/M		4. PIA CAT.		5. UNIT PRICE	
6. STOCK NUMBER CHANGE		7. STOCK NUMBER OF SUBSTITUTE ITEM		8. DEMAND INITIAL. REPLACE.		9. QTY. TURNED IN		10. QTY. REQUIRED	
11. END ITEM NAME AND MANUFACTURER		12. MODEL		13. SERIAL NUMBER		14. PUBLICATION		15. YEAR	
16. STATION		17. UNIT OR ORGANIZATION SUPPLY OFFICER (SIGNATURE)		18. DATE		19. VOUCHER NO.		20. ISSUED	
21. QUANTITIES AS INDICATED HAVE BEEN: <input type="checkbox"/> RECEIVED <input type="checkbox"/> ISSUED		22. QUANTITIES AS INDICATED HAVE BEEN: <input type="checkbox"/> RECEIVED <input type="checkbox"/> TURNED IN		23. POSTED TO STOCK RECORD		24. F. I. A. ONLY		25. REMARKS	
26. INITIALS OF STOCKKEEPER		27. DATE		28. POSTED-INITIALS		29. TOTAL PRICE OF ITEMS		30. LOCATION	

DA FORM 1546 1 AUG 55 (4 PART) **ISSUE AND TURN IN SLIP** **SHIPPING COPY 1**

To requisition the part, the single-line five-part issue and turn-in slip (above) goes to the direct support unit. Then a picking tag similar to the one below is transmitted from the Seventh Army Stock Control Center to depots for selection and shipment of the part.

530501135474001		E445001001010101010002071		001825		100	
DS	STOCK NUMBER	MAC	ORDER IDENTIFICATION	QUANTITY ORDERED	DATE	QUANTITY SHIPPED	RECEIVED DATE
DS	STOCK NUMBER	MAC	ORDER IDENTIFICATION	QUANTITY ORDERED	DATE	QUANTITY SHIPPED	RECEIVED DATE
SUB STOCK NUMBER				LOCATION			
ORDNANCE CORPS				AREA SECTION TIER			
M A S S				LOCATION			
QUANTITY SHIPPED				RECEIVED DATE			
DS	STOCK NUMBER	MAC	ORDER IDENTIFICATION	QUANTITY ORDERED	DATE	QUANTITY SHIPPED	RECEIVED DATE

items were not in stock he might be furnished an inner-tube in lieu of the patch and a carburetor as a substitute for the repair kit. Thus requirements computed on the basis of issue experience often led to procurement, storage and issue of the more expensive item. Demand data as recorded under the Army Field Stock Control, however, reflects the demand against the less expensive items—i.e., the repair kit and the patch.

The principle of selective stockage can be illustrated by indicating the proportionate distribution of authorized repair parts at various echelons. As an example, the using organization might stock 500 line

items; the direct support unit, 3,000; the field depot, 10,000; and the CONUS depot, 40,000.

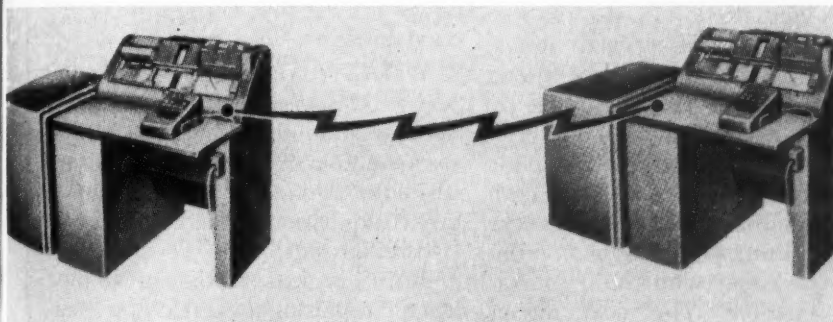
Rapid Communications—second major element of Project MASS—consists of a transceiver network which transmits and receives single-lined punched card data such as requisitions, receipts, and adjustments by electronic means. Transceivers in Europe connect direct support units with the Seventh Army Stock Control Center which in turn is connected to the depots by telephone land lines. A similar network connects the Oversea Supply Agency, New York, with Continental United States distribution depots. Radio trans-

ceivers connect the Seventh Army Stock Control Center, Europe, and the Oversea Supply Agency, New York. This network has greatly reduced requisition time by providing simultaneous transmission and receipt of data between requisition and supply points.

Priority Transportation—the third major element—has reduced the order and shipping time of requisitions from Europe from 120 days to only 20 days for water shipments, and 10 days for air shipments. This has been accomplished by coding the requisitions according to a system of priorities and type of shipment required. Currently overseas shipments under Project MASS are averaging 2,850 tons by surface

transport, 150 tons by air a month.

Electronic Data Processing—the fourth major element—is progressing according to schedule, with conversion from conventional to electronic equipment planned. Transceivers, the first step toward electronic conversion, provide the input in punched card form. Conventional electric accounting machines are presently used at the Seventh Army Stock Control Center, at the Oversea Supply Agency, New York, and at CONUS depots. The electronic data processing systems will perform calculations in milli-seconds and have memory units to retain repetitive data such as stock numbers, unit of issue and cross-reference infor-



Transceivers transmit and receive data (above) in punched card form. Requisition and advice cards (below) are transmitted within the Seventh Army or to the United States for requisitioning and advice of availability.

53050113547H001										EAM530100101018100100020721																			
STOCK NUMBER										QUANTITY										NEW OR SUBSTITUTE STOCK NUMBER									
STOCK NUMBER										QUANTITY										SHIPMENT DIGIT NUMBER									
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

PROJECT MASS - REQUISITION & ADVICE CARD

PROJECT MASS TEST FORM NO 1-1 JULY 1956

mation. This type of equipment will also record data on magnetic tapes, to maintain current stock status records at an emergency alternate point.

ALL FOUR major elements of Project MASS embody the most effective business practices utilized by the Army. And while individual elements may have been in use to a limited degree within the Army previously, the consolidation of all four major elements plus the adoption of a central stock control point for all Technical Services was developed specifically for the Project MASS test.

In effect, the Modern Army Supply System ensures mobility of supply by selective stockage of fast-moving items. In the case of slow-moving, seldom-used items, service by the most expeditious means takes the place of unwieldy and cumbersome stocks.

In Europe, Project MASS extends to approximately 1,200 Seventh Army organizational units. Stocks in these units are held to a minimum consistent with the organization's mission. The next higher level of supply and maintenance is the Direct Support Unit, numbering approximately 85 in all. These include such Technical Service units as the Engineer Field Maintenance Company, the lettered company of the Ordnance Battalion, the Division Signal Company, and the like. These units serve as the source of parts which are not stocked at the organizational level.

A Stock Control Center maintains centralized stock control and accounting records and performs stock control functions; in addition, there are five Seventh Army depots

for repair parts storage of stockage list items.

In Continental United States, the Oversea Supply Agency, New York, receives and retransmits requisitions and advice card data and maintains follow-up records on MASS activity. Specified Technical Service depots are responsible for stocking replenishments for Seventh Army stocks and for procuring "fringe" items as needed:

<i>Technical Service</i>	<i>Depot</i>
Chemical Corps	Memphis (Tenn.) General Depot
Corps of Engineers	Columbus (Ohio) General Depot
Ordnance Corps	Raritan (New Jersey) Depot
Quartermaster Corps	Columbus (Ohio) General Depot
Signal Corps	Tobyhanna (Penna.) Depot

WIDELY dispersed geographically but closely knit in time by speedy communications, the MASS organization seeks to reduce to an absolute minimum the time lapse from requisition to actual delivery of a repair part.

In a typical instance, a mechanic repairing a vehicle in a front line battalion discovers that he requires a replacement part. In most cases the parts room clerk is able to supply the part over the counter since it is probably contained in the unit's basic load. That basic load must remain at 100 percent fill, so whether or not the part is supplied, a single line requisition is submitted that very day to the supporting Technical Service Direct Support Unit.

The Direct Support Unit is a maintenance and supply company responsible for replenishment of the organizational maintenance unit

stocks and for parts required to support its own maintenance activities. It serves the using units by immediately issuing stock from its greater number of items in stock.

If the item happens to be a slow-moving, "fringe" part—that is, one for which there are fewer than three demands every six months—the item is not stocked at the DSU level. Instead, the "fringe" requisition is transcribed from the manually prepared single-line requisition into a punch-card requisition at DSU level. It is then transmitted by transceiver network to the Seventh Army Stock Control Center.

At the Center, stock status records of all Seventh Army depots are screened by electric accounting machines. If the item appears on the stockage list records, a picking tag is mechanically prepared from the requisition and transmitted to a Seventh Army Technical Service depot for shipment.

If the item is not available in Seventh Army, the "fringe" requisition is transmitted to the Oversea Supply Agency, New York, and retransmitted to the appropriate Technical Service depot in the States. The item then is either shipped from stock, extracted to another depot for supply, or it is procured for shipment.

Critical shipments are coded for air movement; all others are sent by priority surface shipment, deck loaded, last on and first off the ship. Large 9,000-pound capacity CONEX containers are now used extensively for such shipments. (See "Transport Without Wheels," November 1955 DIGEST.)

Already Project MASS is mark-

edly transforming basic Army supply concepts which have prevailed for nearly 175 years.

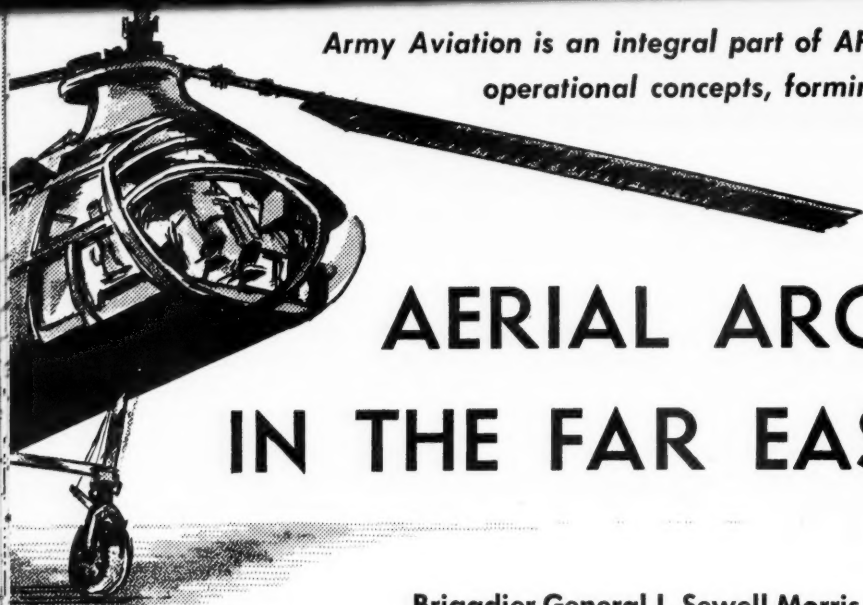
Among the tangible benefits already evident, the following might be cited:

- Stockage in Seventh Army Depots has been reduced, permitting better management control.
- In-storage maintenance has been virtually eliminated in Seventh Army depots because only fast-moving items are authorized for stockage.
- Order and shipping time for overseas requisitions have been greatly reduced.
- Procurement is now controlled on the basis of accurate stockage list data.

IN ITS long-range effects, the Modern Army Supply System offers promise of one hundred percent support to the troops; reduction of deadlined equipment due to this increased supply support; and elimination of exorbitant stocks of unused supplies furnished to overseas commands during combat. Successful employment of Electronic Data Processing foreshadows the establishment of a mobile stock control center in a field army, to insure complete supply mobility at all field army echelons.

With extension of the Modern Army Supply System principle to other overseas commands, the Army will be able to provide the necessary supplies to our troops in the right quantity, at the right time and at the right place. This is the long-sought goal of logisticians and combat troops alike.

**Army Aviation is an integral part of AFPE/8A
operational concepts, forming the**



AERIAL ARCH IN THE FAR EAST

Brigadier General I. Sewell Morris

OVER six feet of snow had fallen and fifteen-foot drifts clogged all access to an entire section of the Korean Demilitarized Zone. Communications had been paralyzed and the resupply of three ROK divisions on the line had become impossible. The same problems confronted the Communists a few thousand yards to the north. It was clear that a considerable tactical advantage might accrue to the side that could first dig itself out to regain operational capabilities.

Army aviation was the natural and immediate answer. Over 65,000 pounds of food, fuel, shovels, communications equipment and arctic gear were flown in by Army helicopters. Isolated positions on peaks nearly a mile high were reached and supplied, and casualties from these same bleak hills were sped to base hospitals.

This was Operation Saint Bern-

BRIGADIER GENERAL I. SEWELL MORRIS is Transportation Officer, United States Army Forces Far East, Eighth Army (Rear), Japan.

ard, the airlift that helped restore tactical capability to the three divisions. Dramatically, it demonstrated the manner in which Army Aviation has become an integral part of almost all tactical and logistical concepts in the Far East.

Such reliance upon Army aircraft is no invention of the units operating today in Korea, for the fixed wings and whirlybirds of the Army are being employed world-wide in very much the same way. Reconnaissance, supply and evacuation sorties are being flown today from bases at Taiwan and Thule and points between. But Army aviation in Army Forces Far East/8th Army (AFPE/8A) is unique in three ways—the degree of its tactical importance, the methods of controlling aircraft, and the obstacles that it faces.

IN KOREA especially, reduced troop strength in the Eighth Army command has magnified the significance of such topographic features as jagged mountains, axle-breaking

roads, primitive rail net, inadequate harbors, all of which combine to make communications and movement of supplies more difficult than usual.

As a result, aerial supply and movement are integral parts of operational plans and training programs. Helicopters of the 13th Transportation Company take part in regularly scheduled troop exercises on the average of one a month. Problems involving air movement of company-size units are written into regimental maneuvers. Today commanders, staffs and troops have formed the habit of thinking in terms of the Army's air capability.

Often a commander, faced with poor land travel conditions, must fly or not go at all if he is to visit his widely scattered units, spread thinly over large land areas. The feeling of dependence on Army Aviation was epitomized recently by General I. D. White, AFPE/8A commander: "Army aircraft have been my long right arm. With them I can reach out to any part of the command as the need arises."

ARMY AVIATION also is assisting materially in maintaining signal communications. Where formerly a signal officer could establish a microwave relay station on a rugged height of land only by making unreasonable demands on his resources and troops, today it is commonplace to fly in both troops and equipment. Aerial wire laying over all but impassable terrain now is routine also.

Medical evacuation today is not the critical problem it was during hostilities but the lessons learned during the fighting are still well

remembered and well used. Critical cases that could not stand the jarring ambulance ride now are evacuated by air, and the number of "non-transportable" cases has dropped to an all-time low.

Under present conditions, air surveillance along the Demilitarized Zone (DMZ) is not just an "extra" that is nice to have, but it is absolutely essential. Yet the DMZ must never be violated. This makes monitoring of flights highly important, especially since aircraft organic to a wide variety of units are located within a single area.

The conflict between the need for caution and the demand for vigilance has caused creation of a surveillance zone along the southern rim of the DMZ. Special safeguards are provided for "outside" flights which must enter the zone. Still more rigid precautions are observed on flights destined for the Armistice Commission camp, which is within the Zone itself. All aircraft on such missions are held to a rigidly specified air corridor.

Besides this limited area control, a more extensive organizational control is being tested. All aviation equipment and personnel in the 7th and 24th Infantry Divisions have been consolidated into "Combat Aviation Companies (Provisional)" under command of the division aviation officer.

ALTHOUGH the Department of the Army has reached no final conclusion as to the desirability of this organizational concept, the two divisions have chosen to continue the experiment, influenced largely by belief that some such control may become mandatory as the size and complexity of Army aircraft



General I. D. White regards aircraft as his "long right arm," enabling him to reach any part of his command at need.

increase and the number of missions in a given area becomes more frequent and varied.

Proponents of the concept feel that a centralized control is the best way for providing full utilization of aircraft. In addition, it provides more efficient administrative, supply, maintenance and other housekeeping functions.

Some difficulties and obstacles have naturally been met. One is lack of a formal Table of Organization and Equipment, which means that no heavier maintenance equipment is allowed over amounts normally allotted to each of the individual flight detachments. Also, a complete lack of precedent has meant that many procedures had to be worked out through trial and error to insure that the company's aircraft remain truly responsive to the commander's needs.

The third unusual feature of Army Aviation within AFPE/8A is the wide variety of operational difficulties encountered. The command itself is spread over three noncontiguous areas—Japan, Korea and the Ryukyus. Further it has logistical support responsibility for Army aircraft in Taiwan, Viet Nam and Thailand.

Thus the command's responsibility covers an ocean arc of some 3,000 miles, partly rugged as in

Japan and Korea, partly islands, partly jungle. The entire area is subject to extremely wide and variable weather conditions, with overall poor radio aids to navigation and magnetic declinations varying greatly to add to navigational problems.

Add to all of this the fact that AFPE/8A is at the end of the longest major supply "pipeline" in the world, and it is readily apparent that the entire Far East is at once a large-scale proving ground and a challenge—continually difficult, sometimes dangerous, but certainly stimulating.

THE command's response to this challenge has been threefold—emphasis on (1) flying safety programs, (2) superior maintenance, and (3) increasing self-sufficiency.

In the area of flying safety, aggressive programs of intense training, close personnel supervision, improvement of facilities, and enforcement of high operations and maintenance standards have paid off. The figures speak for themselves. The AFPE/8A accident rate for Fiscal Year 1956 was 38.6 per 100,000 flying hours as compared to 45.9 for all overseas areas and 48.6 for Army aircraft world-wide.

Maintenance at the end of the long pipeline also has its peculiar

"Commanders, staffs and troops in AFPE/8A have formed the habit of thinking in terms of the Army's air capability."



difficulties. To overcome them, Cargo Helicopter Field Maintenance Detachments have been based in both Korea and Japan. Also a Heavy Transportation Army Aviation Maintenance Company is located in Korea and the main Aircraft Maintenance Center is set up at Chofu in Japan.

Great stress has been placed on maintenance. Requisitions for urgently needed supplies now can be processed in one day. Airlift to the consumer is heavily used. The results have been reflected in reduced pipeline time and stock levels, plus a substantial lowering of time that aircraft are out of commission waiting for parts. Again the figures speak—aircraft "deadlined" for parts were 3.4 per cent in AFPE/8A, 6.4 per cent worldwide.

Increasing self-sufficiency within the command also is showing results. An important phase here has been assumption from the Air Force of depot support responsibilities for Army aircraft. By October 1957 it is expected that the Army will have assumed full responsibility for inventories, stock control, management and depot maintenance.

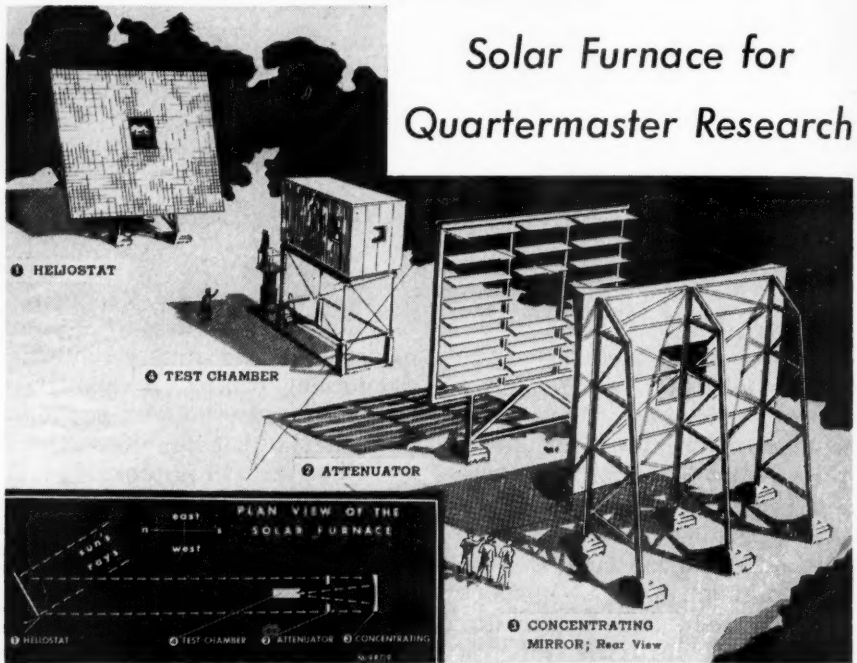
Of great importance in establishing self-sufficiency has been development of indigenous aircraft

industries, culminating recently in the turning over to Japan of the first of 24 Army liaison aircraft to be built in that country. Korea and Okinawa, of course, never had an aircraft industry, while that of Japan disappeared after World War II. This created pressing logistical problems since AFPE/8A was thousands of miles from the nearest basic aircraft industries.

To overcome this deficiency, Japanese contractors first were brought into the overhaul phase of the Army and Air Force aviation programs. This developed local skills to the point where it was found possible to place a contract under MDAP for the 24 aircraft. As the indigenous industries are thus developed, dependence upon United States resources will continue to decrease.

ALL OF these programs are steadily increasing the ability of Army Aviation to meet its mounting responsibilities within AFPE/8A. Its position is well described by General White when he stated, "Army Aviation here is like a 21-year-old lad—it has come of age but it is still growing in strength and stature—and it certainly is ready to be drafted for any use in any emergency."

Solar Furnace for Quartermaster Research



CONSTRUCTION has started on a giant-size solar furnace to concentrate the sun's rays to produce temperatures comparable to those generated by an atomic explosion. The installation is being erected at the Quartermaster Research and Engineering Center, Natick, Massachusetts.

The device will be used for laboratory testing of Quartermaster-designed materials intended for protection against thermal effects of nuclear and other weapons. Standard sources of heat are not adequate for such tests. The solar furnace is expected to reduce time and costs of developing heat-resistant materials.

Rays of the sun are received on a heliostat, a flat mirror 40 by 36 feet which reflects them 96 feet on a concentrating mirror array. This consists of 180 curved surface mirrors, each 23.5 inches in diameter. The mirrors reflect the rays back in concentrated form within the target or test chamber. An attenuator, a venetian blind type shutter, can reduce the intensity of the concentrated beam as desired.

In the test chamber the sun's rays are focused in a 4-inch diameter beam which represents the concentrated energy reflected from the surface of the heliostat and the concentrating mirror. An automatic positioning system controls the heliostat so that it is constantly at the correct angle with the sun regardless of time of day, month or year.

By thus concentrating the sun's rays into a small target area much in the same manner as a magnifying glass is used to produce a very hot pin-point focus, the furnace will have the energy equivalent of approximately 28 kilowatts.

The entire installation is expected to be completed and ready for operation some time this summer.

For over 150 years, the needs of an expanding nation have been anticipated by

Academic Trends At West Point

Lieutenant Colonel Cranston E. Covell

MILLIONS of Americans have visited scenic West Point in the Hudson River highlands and there viewed with awe the majestic splendor of the United States Military Academy's many great buildings. Millions have thrilled at the precision of the Corps of Cadets as it paraded across the Plain, highly polished brass buttons and well shined bayonets gleaming in the late afternoon sun.

But few, in all probability, have ever known just what goes on behind the gray walls of the several academic buildings. Few realize how thorough an education each cadet receives—an education fully equal to that of our best American colleges and universities.

The present program of studies at the Academy has evolved gradually over the years. To some degree the program is prescribed by law, in that the Academy has been given a specific mission, within which framework the curriculum must be planned.

Army Regulations state that "the mission of the United States Military

Academy is to instruct and train the Corps of Cadets so that each graduate shall have the qualities and attributes essential to his progressive and continuing development throughout a lifetime career as an officer of the Regular Army."

Regulations further provide that the courses shall include academic education and military training covering a period of four years, and shall be of such scope and content as is determined by the Department of the Army upon the recommendation of the Superintendent. Courses of instruction and training shall be designed to develop character and the personal attributes essential to an officer, to provide a broad collegiate education in the arts and sciences leading to the bachelor of science degree.

The Academic Board (composed of the Superintendent, Dean, and Heads of the various departments of instruction) is responsible for the curriculum and the courses of instruction.

THE curriculum as it exists today is a product of the Academy's evolutionary development, which in turn is but a reflection of the

LIEUTENANT COLONEL CRANSTON E. COVELL, Artillery, is Assistant to the Dean of the Academic Board, United States Military Academy.



In the physics classrooms, the Academy prepares graduates to meet the rising demand for officer-specialists in technical fields.

Nation's growth and progress over a span of more than 150 years.

Originally the Academy was established at West Point, New York, in 1802, for two basic reasons. First, the Revolutionary War, during which the United States had to rely in large part on foreign officers, proved to the military and political leaders of the time that the Nation's future security and well-being demanded the establishment of an institution where officers could be adequately trained.

Second, the ominous international-political situation of 1801 served to re-emphasize the need for professionally trained officers. The Nation was plagued by troubles with the Barbary pirates, Shays' rebellion, boundary disputes, frontier battles, currency quarrels and threatened involvement in Europe in the tumultuous aftermath of the French Revolution.

The Academy was opened at its

present site with ten cadets under the supervision of the Corps of Engineers. Its immediate purpose was to produce competent American technicians, artilleryists and engineers, to increase the effectiveness of the Armed Forces and encourage the study of science. (See special issue, March 1952 *DIGEST*.)

The unpreparedness of the Nation in the War of 1812, but good service performed by early graduates, led to further enlargement and improvement of the Military Academy. In the period of peace that followed, the great need of the Nation was for internal improvement and for engineers trained to carry out mapping, surveying, and construction of roads, railroads, canals.

In addition to training officers for the Army and training citizens for the militia, the Military Academy became one of the first engineering schools in the United

States. Until 1860, it served substantially as a national school of civil engineering.

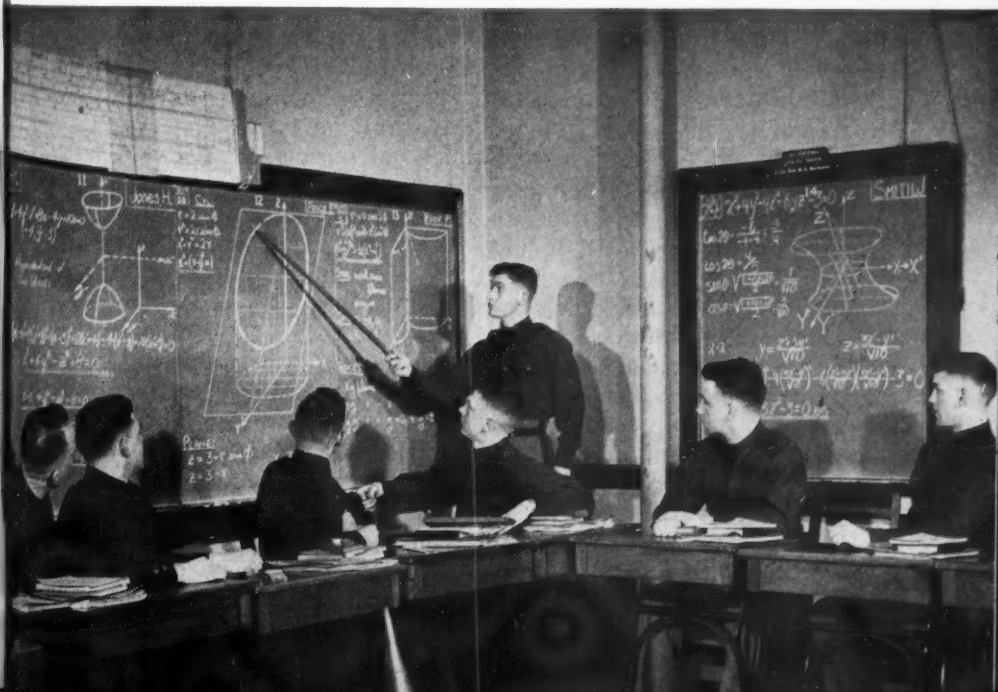
American astronomy was nurtured at the Academy. Trigonometrical and topographical surveying, methods of triangulation, magnetic declination, and the systems of locating, surveying, and dividing public lands of the United States were among the studies which emanated from West Point. Francis Wayland Brown, the scholarly President of Brown University from 1827 to 1855, stated in an 1850 report that West Point graduates did "more to build up the system of internal improvement in the United States than (the graduates of) all other colleges combined."

THESE accomplishments came about largely through the efforts of

Colonel Sylvanus Thayer, Superintendent from 1817 to 1833. Early recognizing the need of the Nation for engineers, Colonel Thayer made civil engineering the core of the curriculum. At the same time his ideal was to produce men who would be trained and worthy leaders.

He demanded of the cadets excellence of character and excellence of knowledge, the two integrating qualities of leadership. Few details of curriculum content, textbooks, teaching methods, extra-curricular activities or physical plant escaped his attention. Possessed of tremendous energy and familiar with every field of science, he remodeled the organizational structure of the Military Academy with the single-minded purpose of achieving the most effective study and teaching.

Mathematics, always important since the Academy was the Nation's only engineer school, receives careful attention in class recitations.





A cadet practices enunciation in a foreign language class. Choice of one of five languages is only elective course offered at West Point.

Thayer developed standards of mental discipline, emphasized correct habits of study, and the ability to acquire knowledge quickly and accurately. The system of instruction and study that he introduced is now substantially as follows:

Cadets must take all courses; they must remain proficient in all subjects; and they must recite frequently in all classes. There are no elective subjects save for the choice of one of five foreign languages. Failure in one subject means dismissal or deferment to the next lower class.

All classes are conducted in small sections usually numbering from 12 to 15 men with an instructor for each section. A cadet rises or falls in class standing according to his daily grades. All sections are rated in order of merit, and cadets are transferred once a month from one section to another as their averages rise or fall. The top men in each subject constitute the first section, the second group makes up the second section, and so on.

THE SYSTEM has many advantages. It encourages daily study

habits. Competition is encouraged by the frequency of published grades and the regularity of classroom attendance. Small classes provide more opportunity for personal instruction. Grouping cadets of relatively consistent ability also makes for more effective instruction. At the same time, the system allows those of highest achievement to push ahead.

This system, while modified during the years, remains substantially as instituted by Thayer. It forms the firm foundation upon which the Academy has grown.

Even during the years prior to 1860 when efforts were concentrated on turning out vitally needed engineers, the Academy never forgot her deepest and most abiding obligation to the Nation—to send forth graduates trained in the art and science of war. That the obligation was fulfilled is attested by the records of its graduates in the Mexican and Civil Wars.

The record shows that the Confederacy used Academy graduates whenever and wherever possible; the Union, in the beginning, used "political" generals. Defeat after

defeat proved the need for professionally trained officers and, in the last year of the war, all senior commanders of the Union armies were Academy graduates. Grant, Lee, Sheridan, Jackson, to name but a few on both sides, were all from West Point.

AFTER the Civil War, changing conditions resulted in less emphasis on civil engineering. The founding of new civilian technical and engineering schools helped make this change possible. However, even if these new schools had not come into being, the Academy would have found it extremely difficult to keep producing both adequately trained Army officers and adequately trained engineers.

The tremendous expansion of the body of scientific knowledge during the last half of the nineteenth century enforced specialization in all technical fields. And since the science of war likewise expanded greatly, it became obvious that the Army officer would need specialization in his particular branch of service.

To meet the demand for officer specialization, several Army postgraduate schools were set up. Increasingly, West Point came to be looked upon as only the first step in the Army officer's education. The Academy closed its first century of existence with the specific mission of providing cadets with general and comprehensive instruction in nearly all the various branches of the Army.

During the period between 1900 and World War I, the Academy underwent a thorough renovation of its physical plant; the English course was strengthened greatly to

teach the cadet to express himself more clearly in speaking and in writing; and the curriculum was gradually made more general in scope.

World War I tested and proved, as never before, the soundness of the Academy's curriculum and training. However, the pressing need for officers caused the Academy to be converted to a virtual training camp.

IMMEDIATELY after the war, the Academy was re-established on the four-year basis with changes in the curriculum dictated by the experience of the war, as well as by advance in knowledge in various fields. It was known, for instance, that the concept of total war required a knowledge of national production, transportation, and social problems; and that something of the new developments in weapons and tactics had to be incorporated into cadet instruction.

At the same time, it was realized that the tremendous advances in the art and science of war, made under the pressure of actual combat, presaged further development of Army postgraduate schools and, hence, there was a growing emphasis upon a more broadly conceived basic curriculum at West Point. It was decided that the Academy would serve best by giving the cadets a combination of general and technical education rather than either a strictly engineering or strictly military program of studies.

This policy of providing a general as well as a technical education received renewed emphasis by the introduction of a course in Economics and Government. In suc-

ceeding years, curricular reforms took place in Modern Languages, Natural Philosophy, and Mathematics. In parallel with these major developments, the courses of each department underwent modifications. Certain departments also excused cadets in the upper sections from taking the traditional general reviews, substituting special advanced courses which additionally broadened the curriculum.

The next major changes resulted from lessons learned in World War II, and from the modern trend in education toward a more general and liberal undergraduate program, which left the more complex task of specialization to postgraduate schooling.

In the period following World War II, various consultants, civilian and military, recommended certain changes in the curriculum. Among

those adopted were expansion of the work in English and in International Relations; and the introduction of courses in Electronics, Economic and Industrial Geography, and Military Psychology and Leadership.

THE MANNER in which the mission of the Military Academy has been carried out may be called the West Point System. Established by Sylvanus Thayer during the sixteen years that he was Superintendent and developed over the past century and a quarter, this system of education and training has been under the scrutiny of the War Department (Department of the Army), every Superintendent, and the Academic Board since then.

While the basic principles have remained much as their originator

CURRENT ACADEMIC CURRICULUM

(Exclusive of Military Training)

<i>Subject</i>	<i>Periods per week</i>
FRESHMAN YEAR	
Mathematics	12
English	5
Foreign language	5
(French, German, Russian, Spanish or Portuguese)	
Surveying, map reading, and aerial photography	5
Physical education (within academic day)	8
SOPHOMORE YEAR	
Mathematics	6
Foreign language	6
Physics	6
Chemistry	6
English	5
Graphics (including engineering drawing)	5

conceived them, the system has been continually modernized to keep it abreast of military and educational progress and development in a dynamic world. The result today is a far less conservative institution than is generally recognized. In short, the Military Academy has avoided the extremes of stagnation in the name of tradition and change simply for the sake of change alone.

THE balanced curriculum currently offered at the Academy requires the cadet to spend about forty per cent of his instructional time in the area of tactics and general military training, and the remaining sixty per cent in academic subjects. The academic studies in turn are also divided on a sixty-forty basis, with sixty per cent of the cadet's academic time

being spent in the technical and scientific area, forty per cent in the social sciences and humanities.

This is a curriculum designed for a specific purpose—the education of an Army officer. Compared with the curriculum of civilian colleges, it lies somewhere between that of the engineer undergraduate and that of the liberal arts undergraduate, a bit less in the science area than the former, a little more than the latter.

Helping to maintain the Academy's traditionally high standards, annual inspections are conducted by the Presidentially-appointed Board of Visitors. Annual tests administered by the Educational Testing Service indicate that the Academy may well take pride in the quality of its graduates and the degree of accomplishment of its assigned mission.

UNITED STATES MILITARY ACADEMY

Exclusive Military Training)

	Subject	Periods per week
	JUNIOR YEAR	
	Mechanics of Fluids (including thermodynamics).....	6
	Mechanics of Solids	6
	(Analytical mechanics & mechanics of materials)	
	Electrical engineering	12
	Social sciences	10
	(History, government, geography)	
	SENIOR YEAR	
	Military engineering	6
	(Includes 81 periods of structures)	
	History of military art.....	6
	Ordnance	6
	(Includes elements of automotive engineering)	
	Economics and international relations.....	6
	Law	5
	(Elementary law, military law, etc.)	
	Military psychology & leadership	5
	(Some of which is given in sophomore & junior years)	

Training AIDs

Keep your organization current with the latest training materials by referring to this section in each issue.

TRAINING LITERATURE

While the following new literature will be published shortly, units are cautioned *NOT* to requisition copies until receipt of automatic initial distribution or the items are listed in DA Pamphlets 310-3 or 310-4.

Airborne Quartermaster Parachute Supply and Maintenance Company (FM 10-33) covers the mission, organization, training, administration, and operations of the Airborne Quartermaster Parachute Supply and Maintenance Company (TOE 10-337C).

Signal Base Maintenance Company (FM 11-85) describes the organization and employment of a signal base maintenance company organized and equipped under TOE 11-587.

Transportation Corps Movement Control Units (FM 55-5) is designed to acquaint transportation personnel with the organization, functions, and employment of movement control units in theaters of operations.

Storage, Shipment and Handling of Chemical Agents and Hazardous Chemicals. This revision of TM 3-250 brings the 1940 edition up-to-date to include newly developed procedures and equipment.

TRAINING AIDS

Training Films recently approved for distribution:

The Mission of the United States Army. At this Officer's Conference (OC-12), General Maxwell D. Taylor discusses the mission of the U. S. Army with officer students from the Armed Forces Staff College. Following a brief commentary on established Army philosophy and policy, particular attention is devoted to the impracticality of waging general atomic wars, the threat of subversion and limited wars, and the Army's capabilities in meeting this threat. General Taylor concludes with the statement that the

formula for victory remains unchanged—"firepower, mobility, and good people."

Individual Fighting Techniques on Snow (TF 7-2397) teaches special techniques and procedures required for effective combat on snow-covered terrain. The first portion covers skiing techniques, firing rifle, firing automatic weapons, and advancing without skis. The second portion is devoted to camouflage and preparation of fighting positions.

The Special Court-Martial (TF 15-2358) deals with jurisdictional powers and procedures of the special court-martial, portraying pretrial, trial, and post trial procedures.

Borrowed Power. This miscellaneous film (MF 20-8717), designed for use in the Army safe driving programs, emphasizes that a good driving attitude is essential for safety on the road.

ARMY EXTENSION COURSES

The following subcourses have been approved for publication by Headquarters, United States Continental Army Command and are either new subcourses or major revisions.

Introduction to Military Petroleum, Subcourse 44. Quartermaster School. Introduction to military petroleum operations; Technical Service responsibilities for petroleum within the Army; origin and history of petroleum; refining processes; types, specifications, and uses of military petroleum products; equality surveillance, to include description and functions of petroleum laboratories, types and significance of tests, description of sampling procedures; sources of contamination; petroleum fires; and safety measures.

Fundamental Missile Subjects, Subcourse 132. Ordnance School. Basic electronics, radar fundamentals, and types of guided missiles and their history.

Armor Task Force, Offensive Action, Subcourse 73. Army Armor School.

Organization for combat of reinforced tank and armored infantry battalions; principles of offensive operation, to include the attack, penetration, and exploitation; employment of supporting weapons.

Technique of Rifle Fire, Rocket Launcher, Hand and Rifle Grenades, Flame Thrower, Night Vision, and Sniperscope, Subcourse 2. Army Infantry School. Characteristics, marksmanship, 3.5-inch rocket launcher; familiarization with hand and rifle grenades; technique of sniper training;

technique of rifle fire; night vision and related equipment; characteristics of portable flame thrower.

Offensive, Tactics, Company and Battalion 1, Subcourse 25. Army Infantry School. Principles of offensive combat to include tactical employment of a rifle company, heavy weapons company, heavy mortar company, and regimental tank company; planning required by a rifle company commander for a daylight attack to include plan of maneuver and plan for coordination and control of supporting fires.

Lacrosse in Production



PRODUCTION of the Lacrosse, a highly accurate field artillery guided missile, has been announced by the Army. The system's essential components include the missile, a launcher mounted on a standard Army truck, and a guidance station. Using units are able to answer calls for fire in the same time as required for conventional artillery, with rapidity comparable to that of a 105-mm. howitzer.

The Lacrosse system was developed under Army Ordnance contract by Cornell Aeronautical Laboratory of Buffalo, New York. Production will be carried out by Glenn L. Martin Company.



PARAGRAPHS

from



The Pentagon and the Field

The tenth anniversary of military unification and the fiftieth anniversary of military aviation will be teamed under the slogan, "Power for Peace" in the 1957 observance of Armed Forces Day, 18 May.

Military aviation was established on 1 August 1907 in the Aeronautical Division of the Office, Chief Signal Officer, U.S. Army. Naval aviation dates from its first aircraft order 8 May 1911. The U.S. Air Force was established as an independent Department in 1947.

James Forrestal, the first Secretary of Defense, took office on 17 September 1947. The four succeeding Secretaries of Defense were Louis Johnson, General George C. Marshall, Robert A. Lovett and Charles E. Wilson.



Reflecting the new policy of assuring that units are readily identified as part of the United States Army, The Infantry Center and The Infantry School at Fort Benning, Georgia, have been officially designated United States Army Infantry Center and United States Army Infantry School.



Major General Donald P. Booth has been assigned as Deputy Chief of Staff for Personnel, succeeding Lieutenant General Walter L. Weible, retired, who served in that position since October 1953. At the same time, Secretary of the Army Wilber M. Brucker has designated Major General Herbert M. Jones as The Adjutant General of the Army, succeeding Major General John A. Klein, retired.



An experimental command post tent (T-56-1) weighing less than 20 pounds is undergoing development by the Quartermaster Corps for possible use in

airborne operations. The tent, made of paper mylar laminate and supported by a collapsible umbrella-type metal frame, accommodates four men and a small table.



Issue of up to three L-19 aircraft per United States Army Reserve combat division which has the capability of operating and maintaining such aircraft has been approved for Fiscal Year 1958. The L-19 is a two-place aircraft used primarily for observation, liaison and courier missions.



Fourth and concluding volume of a series dealing with problems and achievements of the Quartermaster Corps in World War II has been published by the Office of the Chief of Military History. Entitled "The Quartermaster Corps: Operations in the War Against Japan," it may be purchased for \$4.00 from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



Guidelines for establishment of an over-all Department of Defense depot maintenance production mobilization program have been announced with issuance of Department of Defense Instruction 3232.6. The publication contains policies and guidance for planning by the Military Departments with industrial management for commercial and industrial maintenance production capacity that will be needed in event of mobilization.



Army personnel throughout the world are invited to participate in the All-Army

Photography contest. Preliminary contests will be held at various installations, with final eliminations and judging to be held at the Pentagon in November. Top Army winners then will compete with those from Navy, Marine Corps and Air Force in the Seventh Interservice Photography Contest to be held in December. The entire program will culminate with an exhibition at the Pentagon. Photographs must have been taken on or after 1 January 1956.



A new agreement spelling out the operations and functions of the USO has become effective with the signing of a memorandum of understanding by Secretary of Defense Charles E. Wilson, and Emil Schram, President of United Service Organizations, Inc. Under the agreement, USO is given primary responsibility for operating off-station servicemen's clubs in oversea metropolitan areas, while it may operate such off-station clubs as may be deemed necessary within the continental United States, Panama Canal Zone, Alaska and Guam. The Armed Forces are authorized to supply USO with limited logistic support overseas.



The Quartermaster Research and Development Center, Natick, Massachusetts, has been redesignated the Quartermaster Research and Engineering Center.

The West Point Preparatory School, currently located at Stewart Air Force Base, Newburgh, New York, will move in July to Fort Belvoir, Virginia. The School, established in 1946, offers a 20-week course designed to prepare students for entrance to the U.S. Military Academy. The course is open to all qualified members of the Armed Forces on active duty who have been nominated or who will compete for appointments to the U.S. Military Academy.



Total strength of the Armed Forces on 31 December 1956, based on preliminary reports, was 2,780,177. Army strength was estimated at 992,290; Navy, 672,632; Marine Corps, 200,255; Air Force, 915,000.



The Army Combat Surveillance Agency (ACSA), soon to be established in Washington, D. C., will coordinate and expedite the production of a combat surveillance system to be used by troop commanders. The system will utilize improved electronic equipment and techniques to gain battlefield information about the enemy. The Agency, which comes under the jurisdiction of the Army's Chief Signal Officer, will be headed by Brig. Gen. Francis F. Uhrhane, formerly chief of Signal Corps research and development.

Official Notes

COMMUNITY RELATIONS. AR 360-55 outline the principles of community relations programs for commanders and all members of the Army Establishment. Community relations is described as that command function that appraises attitudes of the civilian community toward the command and of the command toward the civilian community, and initiates programs of action to earn community respect and confidence.

MILITARY JUSTICE. AR 350-212 prescribe a training program to provide military personnel with a general knowledge of military justice.

RECRUITING. AR 715-75 prescribe types of supply, equipment and services required for military personnel procurement activities including Armed Forces examining, induction, Army and Air Force recruiting processing units, and recruiting.

THE SIGNAL SCHOOL. AR 350-160 cover mission, organization and function, operation, courses and instruction of The Signal School, Fort Monmouth, New Jersey.

UNIT ROTATION. AR 220-20 prescribe standing operating procedures for the Army system of Unit Rotation, designated by the code name Gyroscope.

COMPONENT IDENTIFICATION. AR 140-8 establishes usage for identification of the basic component of members of the Army Reserve.

MEDICAL CARE. AR 40-108 establish policy governing authorization for medical and dental care of certain categories of personnel at Army medical treatment facilities, and prescribe extent of such authorized treatment.

ENLISTED ALIENS. AR 614-280 establish uniform procedures for assignment and supervision of aliens enlisted or inducted in the Army under various covering regulations.

ARMY EMERGENCY RELIEF. AR 910-10 detail the authorization, organization, operation and procedures of Army Emergency Relief (AER).

LINGUISTS. AR 611-6 set forth procedures for identifying individuals who possess qualifications in various foreign languages, determining degree of their proficiency, and reporting to the Department of the Army those whose proficiency is rated as fair or better.

PERSONNEL SEPARATIONS. AR 635-105A provide means to eliminate from the Army substandard and unsuitable officers and warrant officers. Administrative procedures to assist in identification and processing of such personnel for elimination are contained in AR 635-105B.

ARMY RESERVE. AR 140-305 cover the organization, mobilization, and training of the Army Reserve.

ARMY AVIATION SAFETY BOARD. AR 15-76 establishes the Army Aviation Safety Board as a class II activity at Fort Rucker, Alabama.

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New Radar Mortar Locator Pinpoints Enemy Positions

ENEMY mortar positions can be pinpointed in a matter of seconds by a new radar mortar locator with an electronic brain. Perfected by the Army Signal Corps Engineering Laboratories at Fort Monmouth, New Jersey, the device is an improvement over the earlier unit used in late stages of the Korean fighting.

Compact and mobile—everything except the power supply can be mounted on a single two-wheel trailer—the new mortar spotter can be operated on the trailer or with the console set up in a foxhole 150 yards away for remote control and safety of the operator if the set itself should be taken under enemy fire.

Where previous models used an antenna that moved back and forth on a pedestal while scanning, the new model uses a bulldozer type blade antenna. This remains stationary during operation, automatically picking up anything in its sector; this renders it more efficient in spotting mortars.

A NEW BEAM technique shows the incoming enemy projectile as a blip on the screen. The operator at the console then centers hairlines on the blips and the electronic brain computer provides a direct reading of the enemy position. This information is swiftly relayed to an artillery battery which engages in counter fire, to put the enemy out of action.

First experimental model of the new locator was built by the Signal Corps Engineering Laboratories. Production models, to be known as AN/MPQ-4, will be turned out by General Electric Corporation.

For views of AN/MPQ-4 Radar Mortar Locator in the field, and radar scope unit, see back cover.

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